CLAIMS

What is claimed is:

1. A method of identifying one or more language regions in the brain of a subject, the method comprising:

presenting to the subject one or more lists of related words to selectively challenge one or more language systems of the brain; and

scanning the brain while presenting the one or more lists.

2. The method of claim 1 wherein presenting to the subject comprises:

asking the subject to pay attention to relations among the words;

cueing the subject as to how the words of a list are related; and

presenting the words at a rate whereby the subject can comprehend the words but is challenged to pay attention to the relations.

3. The method of claim 2 wherein presenting the words comprises:

displaying a first word for 560 milliseconds;

waiting for 50 milliseconds;

displaying a second word for 560 milliseconds; and

waiting for 12.5 seconds before presenting another list.

4. The method of claim 1 wherein to selectively challenge one or more language systems comprises to selectively challenge at least one of a semantic system and a phonological system.

5. The method of claim 1 wherein presenting one or more lists comprises presenting at least one list of semantically related words.

6. The method of claim 1 wherein presenting one or more lists comprises presenting at least one list of phonologically related words.

7. The method of claim 1 wherein scanning comprises performing functional magnetic resonance imaging.

8. The method of claim 1 wherein presenting to the subject further comprises alternating one or more lists of semantically related words with one or more lists of phonologically related words.

9. The method of claim 1 wherein presenting to the subject comprises at least one of presenting auditorily and presenting visually.

10. A system for identifying one or more language regions in the brain of a subject, comprising:

one or more lists comprising related words configured to be presented comprehensibly but rapidly to the subject; and

a scanner for scanning the brain while the one or more lists are presented.

11. The system of claim 10 wherein the words of at least one of the one or more lists are related semantically.

12. The system of claim 10 wherein the words of at least one of the one or more lists are related phonologically.

13. The system of claim 10 wherein the words of a list are configured to challenge a language system of the brain.

14. The system of claim 10 wherein configured to be presented rapidly comprises configured to be presented at a rate that challenges the subject to pay attention to relations among the words.

15. The system of claim 10 wherein the scanner comprises a functional magnetic resonance imaging scanner.

16. A method of identifying one or more language regions in the brain of a subject, comprising:

presenting to the subject one or more lists of related words;

cueing the subject as to how the words are related;

presenting the words at a rate whereby the words are comprehensible but that challenges the subject to pay attention to relations among the words; and

recording activity in the brain while the subject processes the words.

17. The method of claim 16 further comprising designing the one or more lists to challenge at least one cortical language system.

18. The method of claim 16 wherein recording activity in the brain comprises performing a functional MRI scan.

19. The method of claim 18 further comprising beginning to present a list while beginning a repetition time of the scan.

20. The method of claim 18 further comprising:

projecting data from the scan onto a surface of a structural brain image; and

flattening the projected data for display.

21. The method of claim 16 wherein while the subject processes the words comprises while the subject says the words silently and thinks about similarity in sounds of the words.

22. A list for use in identifying a language region in the brain of a subject, the list comprising a plurality of related words configured to challenge a language system of the brain while being presented to the subject.

23. The list of claim 22 wherein the words are semantically related.

24. The list of claim 22 wherein the words are phonologically related.

25. The list of claim 22 wherein configured to challenge a language system comprises configured to challenge at least one of a semantic system and a phonological system.

25. The list of claim 22 configured for presentation to the subject at a rate relating to a repetition time of a scanner.

27. The list of claim 22 configured with one or more additional lists to selectively challenge one or more language systems of the brain while being presented to the subject.